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EXAMINER
BEKELE, MEKONEN T

ART UNIT	PAPER NUMBER
4142	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>December 14, 2004</u>.
2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.
3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-11</u> is/are pending in the application.
   4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5)☐ Claim(s) _____ is/are allowed.
6)☒ Claim(s) <u>1-11</u> is/are rejected.
7)☐ Claim(s) _____ is/are objected to.
8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.
10)☒ The drawing(s) filed on <u>December 14, 2004</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.
   Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
   Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a)☐ All   b)☐ Some * c)☐ None of:
      1.☐ Certified copies of the priority documents have been received.
      2.☐ Certified copies of the priority documents have been received in Application No. _____.
      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
   * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
   Paper No(s)/Mail Date <u>9/23/2005</u>.
4) ☐ Interview Summary (PTO-413)
   Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1.   Claims 1-11 are pending in this application.

Priority

2.   Applicants' claim for foreign priority under 35U.S.C 119(e) is acknowledge

based on the foreign application PCT/IB03/02569 filed on 06/17/2002.

Drawings

3.   The drawings are filed on 12/14/2004 are accepted for examination.

Information Disclosure statement

4.   The information discourser statement field on Sep. 23, 2005 is in compliance with

the provisions of 37 CFR 1.97, and has been considered and a copy is enclosed with this

Office Action. It has however noted that ""**XP002254473**" document cited on PTO-1449

is without "title, author name, publication data", and no copy is received. The

"**XP002254473**" document is not received.

Claim Objected

5.   Claim 6, 10 are objected to because in claim 6, " embedder "(23)" on line 3,

"measure (24, 25)" on line 7, "means(26)" on line 9 include diagram legends, in addition

in claim 10 on line 4 " means (24)", on line 5 "means (44)" and on line 7 "means(46)"

include diagram legends.

        Appropriate correction required.

Claim Rejections - 35 USC § 101

6.   35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefore, subject to the conditions and requirements of this title.

7.   **Clam 11 is rejected under 35 U.S.C. 101 because invention is directed to non- statutory subject matter.**

As set forth in MPEP 2106(II)A:

Identify and understand Any Practical Application Asserted for The Invention

The claimed invention as a whole must accomplish a practical application. That is, it must produce a "useful, concert and tangible result." State Street, 149 F.3ʳᵈ at 1373, 47USPQ2D at 160-02. The purpose of this requirement is to limit patent protection to inventions that possess ascertain level of "real world" value, as opposed to subject matter that represent noting more than an idea or concept, or is simply a starting point for future invention or research (Brenner v. Manson, 383 U.S.. 519, 528-36,148 USPQ 689, 693-96); In re Ziegler, 992, F.2d 1197, 1200-03, 26USPQ2d 1600,1603-06 (Fed.Cir.1993)). Accordingly, a complete discloser should contain some indication of the <u>*practical application*</u> *for the claimed invention, i.e., why the applicant believes the clamed invention is useful*

A part for the utility requirement of 35 U.SC 101, usefulness under the patent eligibility standard requires significant functionality to be present to satisfy the useful result aspect of the practical application requirement. See Arrhythmia, 958 F.2d at 1057, 22USPQ at 1036. Merely claiming nonfunctional descriptive material stored in a <u>**computer-readable medium does not make the invention eligible for patenting**</u>.

For example, a claim directed to a word processing file stored on a disk may satisfy the utility requirement of 35 U.S.C. 101 since the information stored may have some" real world" value . However, the mere fact that the claim may satisfy the utility requirement of 35.U.S.C.101 does not mean that a useful result is achieved under the practical application requirement. **The claimed invention as a whole must produce a "useful, concert and tangible" result to have a practical application.**

8.   Regarding claim 11 " **A composite information signal(Y) with embedded data (d) comprising restoration data (r) and auxiliary data (w), said restoration data identifying the distortion of the host signal (X) conditioned on a said composite signal** ." is directed to " abstract idea" because all of the element in the claim 11 would reasonably interpreted by one of the ordinary skill in the light of the discloser page 1 003-008, page 0022-0025, page 4 0046-0049, 0059-0060, as a signal is "non- statutory subject matter"[See Interim Guideline page 55-57] and **claim 11** does not have " Practical application" because the "final result" by the clamed invention in the claim 11 is not producing " useful, tangible, and concrete" and therefore, claim 11 is a non-statutory subject matter [see Interim Guidelines page 55-57]. The claimed invention is subjected to the test of State Street, 149 F.3d at 1373-74, 47 USPQ2d at 1601-02. Specifically State Street sets forth that the claimed invention must produce a "**useful, concert and tangible result.**"

The **Interim Guideline for Examination of Patent Application for Patent Subject Matter Eligibility** state in section IVC.2b.(2) (on page 21 in the PDF format):

The tangible requirement does not necessary mean that a claim must either be tied to practical machine or apparatus or must operate to change articles or materials to different state or thing. However, the tangible requirement does require that the claim must recite more than a $\S101$ judicial exception, in that the claim invention must set fourth a practical application of that a $\S101$ judicial exception to produce a real world result. Benson, 409, U.S. at 71-72, 175 USPQ at 676-77 (invention ineligible because had " no substantial practical application",

In view of Applicant's disclosure, specification page 1, paragraph 0004 -0005, page 2, paragraph 0022, 0024-0026, page 4 , paragraph 0046-0049, page 5 paragraph 0060, the medium is include the **composite signal $\underline{Y=\{y_1...y_N})}$, the host signal X** or other transport mechanism. As such, the claim 11 is limited to non-statutory subject matter and therefore claim 11 is non-statutory.

In accordance with "**<u>Interim Guidelines for Examination of Patent Application for Patent Subject Matter Eligibility</u>**", Published on 12/26/2005, **<u>signals, that carry functional descriptive material such</u>** as a machine readable medium or computer-readable medium executed code or instructions as claimed in claim 11 "does not fall" within one of the **<u>four statutory class </u>** of 35 U.S.C *§101,* see page 55-57, "Interim Guidelines for Examination of Patent Application for Patent Subject Matter Eligibility"] and thus **<u>ineligible</u>** for patent protection

The medium is "signal" and signals fall into non-statutory subject matter,

therefore, claim 11 is non-statutory subject matter.

The examiner is issuing this rejection to as a precaution to ensure that the

Applicant's invention is only directed to what the USPTO considered appropriate

"computer readable medium"

For **"General Analysis for Determining Patent-Eligible Subject Matter", see 101**

Interim Guidelines as indicated below:

<<http://www.uspto.gov/web/offices/pac/dapp/ogsheet.html>>

See MPEP 8th edition, Rev 5, Aug 2006

No new matter should be entered

Claim Rejections - 35 USC § 102

9.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

10.   **Claims 1-5, 7-9, 11 are rejected under 35 U.S.C 102(e) as being anticipated by**

Tian et al. [Herein after Tian] US Patent No. 7277468 B2 filed on Sep. 10, 2001.

11.   As to claim 1, Tian disclosed "**A method of embedding auxiliary data in a host**

signal the method comprising the steps" [col. 2, lines **62**-65, fig 1], where Tian

specifically teaches a method of embedding digital watermark data into a signal, using

predetermined steps, further the watermarks data and the broadcast media signal are

equivalent to the auxiliary data and the host signal;

     "**using a predetermined data embedding method**"[col. 3 lines 1-8**]**, where Tian

     specifically teaches a method of embedding a watermark data into a signal;

     "**having a give embedding rate**" [col. 2, lines 17-22], Tian specifically teaches

the bandwidth of the selected frequency coefficients. It is noted that the bandwidth of the

selected frequency coefficients is equivalent to the embedding rate.

     "**and distortion to produce a composite signal**" [col.3 lines 55-60], where Tian

teaches the embedding process generates a distortion into the digital watermarked signal,

further digital watermarked signal is equivalent to composite signal;

     "**using a portion of said embedding rate to accommodate restoration data**

identifying the host signal conditioned on said composite signal" [col.4 lines 27-40],

where Tain specifically teaches the calibration signal has the lowest frequency

coefficients of the selected frequency coefficients. It is noted that the portion of the

embedding rate is equivalent to the bandwidth of the lowest frequency coefficients,

further the calibration signal analyze the host signal conditions;

"using the remaining embedding rate for embedding said auxiliary data"

[col. 4 lines 27-40], where Tian teaches, the signal with mid- high frequency coefficients

of the selected frequency coefficients apply to authenticate watermark data, further the

bandwidth of the mid- high frequency coefficients is equivalent to the remaining

embedding rate. It is noted that authentication signal can be used to embed watermark

data;

12.   As to claim 2, Tian disclosed **"dividing the host signal into successive**

segments" [col.3, lines 5-8], Tian specifically teaches a method of embedding a

watermark into a signal based on the concept of dividing the signal into NXN blocks,

further dividing the host signal into successive segment is equivalent to dividing the

signal into NXN blocks;

"applying the predetermined data embedding method to said segments"

[Fig 1, col. 2, lines 5-22], Tian's Fig.1 legened102 specifically teaches a method of

embedding watermark into the NXN blocks input media signal;

"accommodating in a segment the restoration data for a previous segment"

[col. 9 lines 39-40]; where Tian specifically teaches one or more measure of

watermark strength is crated from the sequence resulting in the previous step, further the

calibration signal that measure the watermark strength contains the restoration data;

13.   As to claim 3, **"each segments comprises the restoration data for said**

previous segment as well as auxiliary data" [col. 4 lines 27-35] , Tian specifically

teaches a method of selecting and adjusting predetermined frequency coefficients of the

embedding signals, and these coefficients act as both calibration signal and an

authentication signal, further the calibration signal is equivalent to the restoration data;

14.   As to claim 4 Tian disclosed:

(a) **"accommodating auxiliary data only in a segment of given length"**

[col. 3 lines 5-10], Tian specifically teaches the embedding process begins by dividing

and grouping the host signal using predetermined transformation a watermark data is

embedded to each group of the host signal, further the watermark data is equivalent to

the auxiliary data;

(b) **"accommodating, in a subsequent segment, restoration data only for**

previous segment" [col. 9 lines 39-40];   Tian specifically teaches one or more

measure of watermark strength is crated from the sequence resulting in the previous

step, further the subsequent step includes the previous data segment;

(c) "**adapting the length of said subsequent segment to the amount of restoration data being embedded therein**" [col. 9 lines 39-44, lines 51-60, col. 10, lines 19-25], Tian specifically teaches the watermark data strength is measured based on the sequence of the previous steps and strength of the watermark is compared with threshold values until the watermark strength exceed the thresholds, further the watermark strength hold the restoration data;

(d) "**repeating step (b) and (c) a predetermined number of time**"[col. 10 lines 19-25] ;

15.   As to claim 5, Tian disclosed "**wherein said step(d) comprises repeating step (b) and (c) until the length of the subsequent segment is smaller than the predetermined threshold**" [col. 9 lines 51-55, col. 10 lines 19-24], Tian specifically teaches the watermark detector continuously measure and compare the strength of the watermarked signal to the thresholds, the detector complete the cycle of detection when the watermarked signal exceed the thresholds;

16.   As to claim 7, Tian disclosed "**A method of reconstructing a host signal from a composite signal representing a distorted version of said host signal with the data therein** " [col. 2 lies 65—68, col. 4 lines-64-67, fig 1, fig 2]; Tian specifically teaches a method of detecting and correcting potential corrupted watermarked signal, further the

composite signal and the host signal are equivalent to the potentially corrupted

watermarked signal (see fig 2) and the input media signal (see fig 1) respectively;

"retrieving the embedded data from the composite signal" [col. 4 lines 64-67,

fig 2], Tian specifically teaches method of detecting a watermark data from potential

corrupted version of a watermarked media signal;

" splitting the embedded data into restoration data and auxiliary data"

[col. 3 lines 53-60, fig 1], Tian specifically teaches the watermarked signal can be spited

into a calibration signal and an authentication signal, further the calibration signal and

the authenticating signal are equivalent to the restoration data and the auxiliary data

respectively;

"reconstructing the host signal using the reconstruction data, given the

composite signal" [col. 3 lines 53-60], Tian specifically teaches the calibration signal

detect and correct the distortion, further the calibration signal holds the reconstruction

data;

17.   As to claim 8, Tian disclosed " **dividing the composite signal in to successive**

segment" [col. 3 lines 5-10]; Tian specifically teaches the watermarking process starts

by dividing the grayscale image into N X N blocks, further the grayscale image is

equivalent to the composite signal;

"using the restoration data accommodated in a segment for reconstructing a previous segment of the host signal" [col. 9 lines 18-55], Tian specifically teaches a method of reconstruction the original signal based on the concept of the soft- valued sequence;

18.   As to claim 9, Tian disclose **"Wherein each segment of the composite signal comprises the restoration data for said previous segment of the host signal as well as auxiliary data"** [col.4 lines 27-40], Tain specifically teaches the selected frequency coefficients can be divided in to two parts, one part of these coefficient is apply to calibrate the distortion and the remaining of the section is applied for authentication purpose, further the composite single is equivalent to the sum of the calibration signal and the authentication signal;

19.   As to claim 11, Tian disclosed **"A composite information signal (Y) with embedded data (d)"** [col. 2 lines 65-67], Tian specifically teaches a watermarked signal is generated by embedding watermark data in a host signal using encoder, further a watermarked signal is equivalent to a composite signal with embedded data;

"comprising restoration data (r) and auxiliary data (w), said restoration data identifying the distortion of the host signal (X) conditioned on a said composite

signal" [col.3 lines 53-60, col.4 lines 56-59], Tian specifically teaches the embedding

process contains a calibration signals that detect and correct the host signal, in addition

the embedding process can continues additional watermark signal, further the calibration

signal contains the restoration data, and the additional watermark signal is equivalent to

the auxiliary data;

**20.   Claims 6, 10, is rejected under 35 U.S.C 102(e) as being anticipated by
Rhoads et.al. [Herein after Rhoads]   US Patent No. 6,614,914 B1 filed on Feb. 14,
2000;**

21.   As to claim 6, Rhoads disclosed " **An arrangement for embedding auxiliary

data (w) in a host signal (X)"** [col.1 lines36-45, col. 2 lines 62-64], Rhoads specifically

teaches a system of embedding a watermark signal in a host signal, further the watermark

signal is equivalent to the auxiliary signal;

    "a predetermined data embedder " [col.1 lines 37-45, fig 24 A];

    **"having a given embedding rate and distortion to produce   a composite

signal (Y) with embedded data (d)"** [col. 2 lines 62-65, col.2 line 39-45, col.5 lines

1-5, fig. 2, fig. 24A], Rhoads specifically teaches the embedding component produce a

combined signal by adding watermark signal and a host signal, further the embedding

process generate distortion. The information carrier to convey   a message is equivalent

to embedding rate. For example figure 24A illustrate the relationship between the

composite signal Y and embedded data d as follows: the output signal of the scanner is

equivalent to the composite signal Y, the Digital Image is equivalent to the embedded

data d, and the composite signal is obtained by adding output signal of the scanner and

Digital image;

"means for generating restoration data (r) identifying the host signal (X)

condition on the composite signal (Y)" [col. 8 lines 50-65, col.9 lines 35-55,

fig 24A], Rhoads specifically teaches the error correction coding processor analyze the

condition of the water mark signal(composite signal), further the processor compare the

host signal with the watermark signal and correct the error, the out put signal generated

by the coding processor to analyze the condition of watermark signal (see fig 24A) is

equivalent to the restoration data, and the printed image is equivalent to the host signal X;

"means for accommodating said restoration data (r) in a portion of said

embedded data (d) and auxiliary data (w) in the remaining portion of said

embedded data" [col. 7 lines 27-33, col. 9 lines 18-25] , Rhoads specifically teaches

the decoder can filter the portion of the error correcting signal (restoration data) to

remove unwanted signal that interfere with the reconstruction of the message, further the

orientation pattern signal is equivalent to the auxiliary data (w) [col. 7 lines 27-33];

22. As to claim 10, Rhoads disclosed " **An arrangement for reconstructing a host signal (X) from a composite signal (Y) representing a distorted version of the host signal with data (d) embedded therein"** [col.8, lines 50-65, col.9 lines 1-15, Fig24A], Rhoads teaches different techniques to recover a original message value from a watermarked signal, for example Fig 24A teaches how to recover the original message using the feedback block (Evaluate Quality and Detectability), further the Printed Image and the output of the Watermarking Embedding block are equivalent to the host signal (X) and the composite signal (Y) with data (d) respectively;

"means for retrieving the embedded data(d) from the composite signal Y" [Fig24A] , Rhoads teaches the emended data d can be recovered using the Evaluate Quality and Detectability block as a feed back controller;

"splitting means for splitting the embedded data(d) into restoration data(r) and auxiliary data(w)" [col. 7 lines 40-43, col.9 lines 18-25, Fig. 24A], Rholds specifically teaches the watermarked signal (see Fig 24 A that goes to Evaluate Quality and Detestability block is to embed the auxiliary data, while the watermarked signal that that goes to Printing and Publishing block is used to restore the watermarked signal , further the watermarked signal is equivalent to the restoration data (r);

"reconstruction means for reconstructing the host signal (X) using the reconstruction data (r), given the composite signal (Y)" [col.8 line 50-68, col.9 line 1-25], Rholds specifically teaches a method of extracting a message in the watermark.

Conclusion

The Prior art made of record

a. US Patent No. 7,277, 468 B2

b. US Patent No. 6, 614, 914 B1

The prior art made of record and not relied up on is considered pertinent to applicant's disclosure

> **US Patent No. 6999598B2**
>
> **US Patent No. 6625321B1**
>
> **US Patent No. 6650762B2**
>
> **US Patent No. 6385329B1**
>
> **US Patent No. 6885756B2**
>
> **US Patent No. 7058979B1**

Any inquiry concerning this communication or earlier communication from the examiner should be directed to Mekonen Bekele whose telephone number is 571-270-3915. The examiner can normally be reached on Monday -Friday from 8:00AM to 5:50 PM Eastern Time.

If attempt to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Srirama Channavajjala, can be reached on (571) 272-4108. The fax phone number for the organization where the application or proceeding is assigned is 571-237-8300. Information regarding the status of an application may be obtained from the patent Application Information Retrieval (PAIR) system. Status information for published application may be obtained from either Private PAIR or Public PAIR.

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M.B
Patent Examiner

/Srirama Channavajjala/
Supervisory Patent Examiner,
Art Unit 4142.